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DRAGONS AND MERMAIDS: Script Building Using Sociodrama as an Ecological Teaching and Learning Application

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DRAGONS AND MERMAIDS:
Script Building Using Sociodrama
as an Ecological Teaching and Learning Application

By

Catherine M. Skora

An Abstract of a Project

In Creative Studies

Submitted in Partial Fulfillment

Of the Requirements

For the Degree of

Master of Science

December 2010

Buffalo State College

State University of New York

Creative Studies Department

ABSTRACT OF PROJECT

DRAGONS AND MERMAIDS:
Script Building Using Sociodrama
as an Ecological Teaching and Learning Application

Abstract

This project describes and demonstrates a script-building process for use as a teaching and learning application for third-grade students. Creativity elements of models framing this application will include the Torrance Model of Sociodrama as Creative Problem Solving, Rhodes' 4 P's (person, process, product, and press), and the Creative Problem Thinking Skills Model. The constructivism theory of learning is discussed to demonstrate an active-learning process that is ecological in nature, as are the creativity models discussed. Engagement of students in this ecological and active-learning process is the intention of the teaching and learning application in this paper. Commonalities among these creativity models, the constructivism learning theory, and the script-building teaching and learning application are evident and presented in two matrix charts. An example of a script built by students resulting from this teaching and learning application is presented to model the results of an action-learning process.

Running head: DRAGONS AND MERMAIDS: SCRIPT BUILDING USING SOCIODRAMA
AS AN ECOLOGICAL TEACHING AND LEARNING APPLICATION

Buffalo State College
State University of New York
Creative Studies Department

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Project Advisor

Candidate

Table of Contents

Title Page, Abstract, Signature Page	1-4
Acknowledgements.....	6
Introduction.....	7-9
Section One - Creative Process Models	
Torrance Model of Sociodrama as Creative Problem Solving.....	9-14
4 P's Model of Creativity.....	14
Thinking Skills Model.....	14
Section Two - Overview of Learning Theories	
Cognitive, Behaviorism, and Constructivist Learning Theories.....	15
Constructivist Learning Theory and Design Model	15-20
Student Engagement in Learning.....	21
Active Learning – Neurological Studies.....	21-23
Section Three – Commonalities in Processes Provoking Active Learning.....	23
Section Four – Script Building Application	
Development and Methods Utilized.....	23-24
Objectives of the Application.....	25
Process Flow Chart of Application.....	26
Nine Steps and Descriptions of Application.....	26-28
Section Five – Discussions, Future Explorations, and Summary.....	28-33
References.....	34-36
Appendices	
Appendix A: Commonalities - Matrix Chart One	37
Appendix B: Commonalities – Matrix Chart Two.....	38
Appendix C: Personal Observations and Sample Script.....	39-44
Appendix D: Application Process Flow Chart.....	45

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The words of modern dance pioneer Martha Graham have inspired me again and again and aptly describe the process leading to the culmination of this project:

....I am a dancer. I believe that we learn by practice. Whether it means to learn to dance by practicing dancing or to learn to live by practicing living, the principles are the same. In each it is the performance of a dedicated precise set of acts, physical or intellectual, from which comes shape of achievement, a sense of one's being, a satisfaction of spirit. To practice means to perform, in the face of all obstacles, some act of vision, of faith, of desire. Practice is a means of inviting the perfection desired.

I would like to thank my professors, colleagues, and mentors for your inspirations in transforming this project to a *satisfaction of spirit*.

Introduction

The Torrance Model of Sociodrama as Creative Problem Solving (Torrance, Murdock, Fletcher, 1989), the 4 P's (Rhodes, 1961), and the Thinking Skills Model (Puccio, Murdock & Mance, 2007) provide a frame of the creative processes and creative elements around a script-building teaching and learning application for third-grade students in this project. The main intent of this application is to fully engage students in the learning process. To this end, commonalities among the creative process, constructivist learning theory (Gagnon & Calloy, 2001), and this application are discussed. This script building teaching and learning application highlights the powerful and useful elements of the natural creative process in student learning. Additionally, the ecological approach of scriptwriting through sociodrama demonstrates the potential learning possibilities of new and shared perspectives in group explorations and solution finding (Torrance & Safter, 1999) as is found in the creative process (Davis, 2004) and constructivist learning theory (Fosnot, 1996; Piaget, 1977; Gagnon & Calloy, 2001). The powerful element of connecting and building on ideas, both concepts central to the natural creative process and constructivist theory, is an evident element throughout this paper.

Active Learning

Research has shown that students need to first learn how to think in order to retain and make use of connections to new information that is presented to them (Bruner, 1986). Active learning, as present in and described in constructivist learning theory, has been shown to be the most effective method in promoting thinking and learning, as this method engages students,

encourages exploration and discovery, and allows students to use high-order thinking skills (Gagnon & Calloy, 2001; Perkins 2009). Constructivist learning theory and research are cited in this project, pointing to the success of student learning when students have the opportunity to explore their potential through an active learning process.

Student Learning Opportunities

The script-building teaching and learning application in this project provides students with an opportunity to connect to the content area using their cognitive abilities and affective skills prompted by their sense of inquiry through an active learning process. This active learning process leads to practicing and becoming familiar with thinking skills that are going to prepare students to be successful members of a global community using their best skills and potential.

Script Building Teaching and Learning: A Practical Application

The teaching and learning application in this project can be useful to teachers and students having the potential to increase knowledge about the creative process, demonstrate the potential of group work, and connect students to content areas, which can all enhance student engagement in the learning process (Gruber, 1989). Merits of student engagement and resultant learning using this application are discussed and related to constructivist learning theory and creativity models.

Included in this project is an application for teaching and learning through the use of scriptwriting. The application described and presented is focused for use in a third-grade class, includes process steps and descriptions, and can be adapted for other grade levels. It was developed over a three-year period resulting from in-class experience teaching a third-grade weekly dance class, including observations and trials of using a variety of learning and teaching techniques. Through the personal observation section of this paper are teaching techniques,

warm-up activities, guided instructions for classroom script-building, sample of a third-grade play generated by this process. Readers are invited to engage in the exploration and discovery process through this personal observation section, allowing their own experiences, perceptions, prior knowledge, context, and style to interpret and make use of this section as is most relevant.

Discussion, Future Explorations and Summary

The potential of this project is discussed as relative to future possibilities in framing script building as a teaching and learning application with a creativity process. The larger view of this application includes the relationship of creativity training with active learning theories in an effort to assist educators in the utilization of creative processes to engage students in the learning process. This, in turn, enables the students to experience an expanded range of cognitive skills as they use their own styles and points of reference to construct a knowledge base, an ecological approach, using their preferred style to apply this knowledge base within the world in which they live.

Creative Process Models and Definitions

Torrance Model of Sociodrama as Creative Problem Solving: History and Background of Sociodrama

Sociodrama grew out of psychodrama, which was most widely known as a form of psychotherapy. To better understand the link from psychotherapy to sociodrama as creative problem solving, listed below are brief descriptions of psychotherapy and a developmental framework of psychotherapy from which the Torrance Model of Sociodrama as Creative Problem Solving (Torrance, Murdock, & Fletcher, 1989) was born. This developmental

framework of psychotherapy also reflects developmental benchmarks in the study of creativity and learning theories. The historical development of creativity and learning theories in full is beyond the scope of this paper. Rather, historical development in this paper is focused on providing a backdrop for the description of the Torrance Model of Sociodrama as Creative Problem Solving.

Psychotherapy: Ancient to Present

The ancient Greeks recognized that mental illness was a medical condition and saw the merit of using encouragement and kind words in treatment methods (Gill, 1985). While the cause for mental conditions in ancient times was not always on target, such as pointing to demonic possession as a cause for mental illness, there are instances of the early use of psychotherapy techniques. These instances include a holistic treatment of rest, exercise, diet and reflecting on dreams (Gill, 1985). This ecological approach found in ancient models of treatment points to the understanding and importance of addressing a problem from more than one perspective and the treatment of the whole person rather than just an illness.

Modern Day

Sigmund Freud believed mental disorders were the result of repressed thoughts and memories in the unconscious, and that through giving the patient an opportunity to talk while the therapist provided interpretations would assist to bring unconscious thoughts to the forefront and diminish symptoms. For over 50 years, Freud's methods of treatment were the main psychotherapy used in clinical practice (Davis, 2004).

Action Oriented Psychotherapy – Behaviorism

In the 1950s, a more action-oriented process to psychotherapy was being developed, borrowed from principles of animal psychology. The work of B.F. Skinner was groundbreaking during the 1950's and developed a branch of psychology developing a unified framework for behavior based on principles of learning through his research shaping behavior through positive and negative reinforcement. Behaviorism, while productive in changing behavior, was seen as limiting and a one-dimensional approach to therapy, as the therapy addressed the very narrow aspect of only the behavior to be changed, rather than the complexities of the whole person (Davis, 2004). This was obviously not a very ecological approach in defining or treating the complexities involved in the human condition.

Person Centered Therapy - Humanistic

An evolution of behavior therapy led to the inclusion of taking into account the thoughts and feelings of a person. In the 1940's, Carl Rogers developed an interpersonal therapy that included a more personal interaction between client and therapist comprised of acceptance and an authentic approach to interactions. Roger's theory was based in part in recognizing that individuals define their reality based on their interpretation of their experiences in a fluid and changing field of perceptions and information (Thorne, 2003). The trend in psychotherapy continues to be more action-oriented in identifying a problem and solutions that an individual may utilize that best fits his or her need and style. This goal-oriented method is widely used and effective as a therapy as well as a tool for decision making and life-choices (Norcross, 2002; Greenberg, 1998).

Psychodrama

Jacob L. Moreno M.D. conceived and developed psychodrama (Moreno, 1946) that uses guided dramatic action to examine problems or issues raised by an individual. Psychodrama facilitates insight, personal growth, and integration on cognitive, affective, and behavioral levels. It clarifies issues, enhances learning, and develops new skills (Blatner, 2007). Psychodrama is focused on addressing problems and issues of an individual assisted by working within as group (Blatner , 2007).

Sociodrama

An offshoot of psychodrama, sociodrama focuses on common issues of a group within a context, such as classroom, work, or social settings, with an aim to better understand particular issues within this context as a group. There is a deeper understanding of issues as members of a given group explore a variety of roles within the context in order to more fully understand the issues from different perspectives. Psychodrama focuses on solution finding for the individual, while sociodrama focuses on solution finding for a group (Blatner, 2007).

Torrance Model of Sociodrama as Creative Problem Solving

Torrance moved the sociodrama concept forward with his model of Sociodrama as Creative Problem Solving (Torrance, Murdock, & Fletcher, 1989) for the following purpose, as stated in the introduction of his book:

The primary purpose of this book is to serve as guidebook for role playing directors, whether in the classroom or in the personal development of therapeutic settings.

Secondary purpose is to show how role playing can be used as a systematic approach to the Creative Problem Solving process and it can be used to produce states of consciousness that result in breakthrough ideas. In other words, role playing is presented

as a technology that combines what we know about learning, problem solving, states of consciousness and human relations (p. v).

The use of sociodrama as creative problem solving is explained (Torrance, Murdock, & Fletcher, 1989):

Since the intent of sociodrama is to produce and test alternative solutions in group or social conflict by dramatic action, it may be used to define the problem, propose multiple solutions, and evaluate these proposed solutions. As new insights or breakthroughs in thinking occur, these can be translated into action, practices evaluated, and modified or elaborated (p.8).

Torrance describes fifteen functions of sociodrama as creative problem solving (Torrance, Murdock, & Fletcher, 1989). These functions can be seen in the following categories: five refer to providing training and practice, two to understanding and resolving conflicts, one to becoming aware of and clarify information, two to train for new leadership and means of awareness of other values, two to explore polarities and connections, one to help in discovery, one to develop awareness of the role of feelings and values, and one to give an opportunity to experiment (Skora, 2010). The purpose and categories of the Torrance Sociodrama Model of Creative Problem Solving (Torrance, Murdock, & Fletcher, 1989), rather than the specific procedures and functions of the model, will be the point of reference in demonstrating useful purposes of script building as a teaching and learning application in this paper.

This description of the use, purpose, and categories of the functions in the Torrance Model of Sociodrama as Creative Problem Solving can be seen as a productive model for teaching and learning in the classroom as it contains a group in a context, provides a platform for looking at issues from different perspectives, is a deliberate process that can be practiced, assists in

resolving conflict, clarifies information, promotes awareness of self and others, and is a ripe venue for trying and testing solutions. To go a step further, the purpose of the Torrance Model of Sociodrama can be utilized to create a scriptwriting teaching and learning technique to enhance learning about a content area, build community in a classroom, develop creative problem solving skills, provide a chance for students to hone social skills, and offer an opportunity for a student to practice his or her individual style in approaching a problem or being presented with new information. Additionally, translating the purpose of this Torrance Model to script building as a teaching and learning application assists students in having an opportunity to explore roles, discover new information, and deepen and expand their learning -- a very active learning process.

4 P's Model of Creativity

Rhode's ecological model of creativity focuses on person, product, process, and press, both as individual units and in relation to each other (Rhodes, 1961). This holistic model continues as a force in the creativity field from which numerous facets of creativity are described and examined. The 4 P's model highlight the ecology of creativity.

Creative Problem Solving - Thinking Skills Model as Active Process

The Thinking Skills Model (Puccio, Murdock & Mance, 2007) is an action-oriented model defining three conceptual stages to the natural creative process: clarification, transformation, and implementation. This model reflects the cognitive processes involved in the creative process and is useful in describing and identifying the various stages that occur when solving a problem (Puccio, Murdock & Mance, 2007). Similar to a map, once we are aware of our destination we can keep referring to our map to assure we are going in the intended direction and making progress. This *map* can be related to the various processes used in script building as a teaching

and learning application and can also be viewed as akin to the action learning process in elementary education. The next section will discuss learning theories and cite research demonstrating that action learning models are the most successful models for student learning.

Overview of Learning Theories

Cognitive, Behaviorism, and Constructivism Learning Theories

Three learning theories that are and have been most widely used in educational settings are cognitive theory, behaviorism, and constructivism. Cognitive theories look beyond behavior to explain brain-based learning. Behaviorism focuses on learning, which is objectively observable. Constructivism considers learning as a process in which the learner actively constructs or builds new ideas or concepts (Cooper, 1993). This construction of knowledge and ideas is also reflected and used in our natural creative process as we clarify and seek to understand where gaps of information exist, seek and test ideas, and then form ideas into a plan of action that will successfully address the original inquiry (Puccio, Murdock & Mance, 2007).

Constructivist Learning Theory

In this paper commonalities among the constructivism learning theory and elements of creativity models are discussed. These commonalities also make a connection to the script-building teaching and learning application described in this paper. Constructivist learning theory contains the elements of learning defined in education and psychology fields as a process bringing together cognitive, emotional, and environmental influences and experiences for acquiring, enhancing, or making changes in one's knowledge, skills, values, and world views (Illeris, 2000).

The 4 P's bring together and assist in organizing creativity in a similar fashion, as does the Thinking Skills Model (Puccio, Murdock, Mance, 2007) and the Torrance Model of Sociodrama as Creative Problem Solving (Torrance, Murdock, & Fletcher, 1989). In each of these creativity models there are contributing variables involved in the creative process recognizing the affective and cognitive aspects of an individual when in this process. The affective aspect includes the way we "deal with attitudinal and emotional aspects of learning, including feelings, appreciation, enthusiasm, motivations, attitudes, and values" (Puccio, Murdock & Mance, 2007, p.51).

This is another example of an ecological approach to thinking and learning.

Looking at the following passage from Jean Piaget (Fosnot, 1996) in describing a constructivist learning theory a commonality can be seen between this theory and the recognition of perception through the lens of our affective outlook in the creative process.

Jean Piaget, renowned for his scholarly work in the area of developmental psychology, developed a constructivist learning theory (Fosnot, 1996), in part as follows:

... one cannot draw conclusions about the character of the real world from an organism's adaptedness or the visibility of schemes or actions. In his view what we see, hear and feel- that is our sensory world- is the result of our own perceptual activities and therefore specific to our ways of perceiving and conceiving. Knowledge, for him, arises from the actions and the agents' reflection on them. The actions, take place in an environment and are grounded in and directed at objects that constitute organism's experiential world, not things in themselves that have independent existence. Hence, when Piaget speaks of interaction, this does not imply an organism that interacts with

objects as they really are but rather a cognitive subject that is dealing with previously constructed perceptual and conceptual structures (Fosnot, p. 4, 5).

Active learning, a method of constructivist learning, is a personal endeavor, based on perceptions and experiences in a given context. An active teaching and learning approach in the classroom allows students to draw on their own strengths and perceptions in making connections and exploring and discovering content areas. When this process is shared within a group it is referred to as *social constructivism*, which allows for ideas to be shared, and knowledge is constructed through socially interactive engagement and activity about shared problems or tasks (Gergen, 1985). In this active learning process the teacher facilitates students to discover ideas and build knowledge as the students solve realistic problems (Bonwell & Eison, 1991). This active process ignites the natural creative process, and a commonality is evident between social constructivism and creative problem solving group techniques in using the wealth of a group's energy in making connections and building on each other's perspectives to explore and solution find. Additionally, commonalities also can be seen between this active learning process and the Thinking Skills Model and the Torrance Model of Sociodrama as Creative Problem Solving. These commonalities are shown in Chart 1 Appendix A.

Design Model of Constructivist Learning Theory

Below is a design model of constructivist learning (Gagnon & Collay, 2001), including educational theory research as noted supporting the design. This design and supporting research was developed by George Gagnon and Michelle Collay, educators and researchers in the education field. They describe constructivist learning:

Constructivist learning has emerged as a prominent approach to teaching during this past decade. The work of Dewey, Montessori, Piaget, Bruner, and Vygotsky among others

provide historical precedents for constructivist learning theory. Constructivism represents a paradigm shift from education based on behaviorism to education based on cognitive theory (Fosnot, 1996). Behaviorist epistemology focuses on intelligence, domains of objectives, levels of knowledge, and reinforcement. Constructivist epistemology assumes that learners construct their own knowledge on the basis of interaction with their environment. Four epistemological assumptions are at the heart of what we refer to as constructivist learning:

1. Knowledge is physically constructed by learners who are involved in active learning.
2. Knowledge is symbolically constructed by learners who are making their own representations of action;
3. Knowledge is socially constructed by learners who convey their meaning making to others;
4. Knowledge is theoretically constructed by learners who try to explain things they don't completely understand.

The "Constructive Learning Design" we are using now has been through a variety of revisions in the past seven years and now emphasizes these six important elements:

Situation, Groupings, Bridge, Questions, Exhibit, and Reflections. These elements are designed to provoke teacher planning and reflection about the process of student learning. Teachers develop the situation for students to explain, select a process for groupings of materials and students, build a bridge between what students already know and what they want them to learn, anticipate questions to ask and answer without giving away an

explanation, encourage students to exhibit a record of their thinking by sharing it with others, and solicit students' reflections about their learning.

Educational Precedents

Each of these six elements of our constructivist learning design has educational precedents. The following overview provides brief references to theoretical ancestors which support including these elements in organizing for learning:

Situations: The work of Duckworth (1987) describes situations to engage students in having their own wonderful ideas about science, Steffe and Ambrosio (1995) use situations for students to explain in math, and Fosnot (1996) provides similar examples from writing and art.

Groupings: Schmuck and Schmuck (1988) introduced group process dynamics to classrooms, and heterogeneous groupings are common to the cooperative learning work of Johnson and Johnson (1975) or Slavin (1980a). The materials category is often included in lesson plans.

Bridge: This has some grounding in the set induction described by Gagne (1970), the anticipatory set of Madeline Hunter (1982) and the advanced organizer of Ausubel (1978).

Questions: There is precedence in Bloom's (1956) taxonomy of educational objectives in the cognitive domain which led to higher level thinking questions, Sanders' (1966) work on kinds of classroom questions, and Flanders' (1970) work describing classroom questioning strategies.

Exhibit: The work of TheodoreSizer (1973) and the coalition for essential schools includes an exhibition as part of the learning process. The passages of the Jefferson

County Open School in Colorado and the validations of the St. Paul Open School in Minnesota put into practice authentic assessment approaches from a variety of sources including Wiggins (1995). Documentation from Engel (1994), portfolios from Carini (1986), and alternative assessment from the North Dakota Study Group on Evaluation led by Perrone (1988) encouraged teachers to move from testing memorization of information to demonstration of student learning.

Reflections: We see earlier work in Hunter's (1982) description of "transfer," the work of Schon (1987) about reflective practice of teachers, which also applies to student learning, reflection about learning through journaling as described by Cooper (1991), and Brookfield's (1986) work on critical reflection. These precedents provide a theoretical framework for a constructivist learning design (Gagnon & Calloy, 2001).

This design model of constructivist learning demonstrates the power of active learning through researched educational precedents. This design model actively engages the students in the process, allowing them to be self-actualized: "... refers to our desire for self-fulfillment, namely, to the tendency for a person to become actualized in what he or she is potentially...the desire to become more and more what one is, to become everything that one is capable of becoming..what one can be, one must be" (Maslow, 1954, p.91). Student engagement through active learning provides a means for the students to explore and expand on their potential. In the context of working within a group, such as group creative problem solving through sociodrama, the sharing and reflection of ideas can assist in expansion of individual potential as new information is presented via different perspectives within the group.

Student Engagement in Learning

Students must be engaged in higher-order thinking tasks, such as analysis, synthesis, and evaluation, to be actively involved in learning (Bonwell & Eison, 1991). Teaching and learning strategies promoting active learning involve students in doing things and thinking about what they are doing, as opposed to rote learning and memorization of facts. Discussion, writing, reflecting, role playing, cooperative learning, peer instruction, problem solving, and sharing within a nurturing emotional and intellectual environment have proven to be productive platforms for student learning (Bonwell & Eison, 1991). A nurturing and supportive emotional and intellectual environment encourages students to take risks as they explore new information, leading to expanded use of thinking skills (Lowman, 1984).

Active Learning - Neurological Studies

Additional research that cites active learning as a successful technique is found in neurological studies of the brain when students are engaged in active learning. Modern technology, such as neuroimaging, provides assistance in choosing teaching and learning models that will provide benefit to learners based on facts about functions of the brain while involved in learning:

Neuroimaging brain research demonstrates that superior learning takes place when classroom experiences give active voice to students. Positive motivation impacts brain metabolism, conduction of nerve impulses through the memory filters, and the release of neurotransmitters that increase executive function and attention. When curriculum is relevant to students' lives, interests and experiences, and students feel they are partners in their education, they are engaged and motivated (Willis, 2007, p.1).

Additional studies, as cited below, demonstrate the importance of teaching and learning approaches that affect brain chemistry, opening paths to higher-order thinking skills. These executive functions assist in preparing students to not be consumers of knowledge and rote facts through memorization but to be participants in the real life world. This includes the necessity of making choices and decisions and having an awareness of the possibility of choices and the ability to make an adequate choice in any given situation. Research addresses some of the brain chemistry relevant to learning and higher order thinking skills:

- Dopamine is a chemical neurotransmitter associated with attention, memory storage, comprehension, and executive function. In the frontal lobes there is an optimal metabolic state of enhanced neural stimulation that facilitates the passage of information through the learning pathways (Willis, 2007).
- Early studies suggested that the brain released more dopamine while the individual was engaged in activities like playing, laughing, exercising, and listening to stories read aloud (Willis, 2007). It was later discovered that neuronal circuits going from the limbic system (emotional center) into the frontal lobe and other parts of the brain are rich in dopamine receptors activated by this dopamine release (Willis, 2007).
- Teaching and learning approaches used to engage students in learning have been demonstrated to activate this dopamine release (Willis, 2007). Examples of these approaches are exploration and investigation activities, cooperative learning, inviting students to set some of their own learning goals, student choice of areas around content to explore, social collaboration, and physical activity connected to academic study.

Commonality in Processes Provoking Active Learning

Research in the previous section of this paper points to active learning as a productive and proven method to assist students in obtaining and processing knowledge that will be meaningful and useful to them in real-life scenarios. The Torrance Model of Sociodrama as Creative Problem Solving, constructivism learning theory, and the Creative Problem Thinking Skills Model contain processes that prompt active learning. It is beyond the scope of this paper to describe in detail each of these process models. However, charts demonstrating commonalities among these processes and models can be found in Appendix A. It is evident that active learning among these models and processes include similar elements of inquiry, clarification, transformation, and reflection. It is also evident that each of these processes is most meaningful and useful when viewed through the context in which an area of inquiry takes place and through the perceptions and relationships to the area of inquiry. An example of an active teaching and learning process through an application using scriptwriting will be outlined in the next section. Commonalities among elements of this application, constructivism learning theory design, and the CPS Thinking Skills Model are included in Chart 2 in Appendix B.

Script Building – Teaching and Learning Application

This active learning application was developed over a three-year period working with a third-grade class in a weekly dance class designed as part of an arts integration model including core subject content in the dance class focusing on culture, geography, and earth conservation. This application has the flexibility to be delivered based on class and unit time needs and preferences, and can focus on content area of choice. As with student learning styles, this application can be used in a variety of ways and will be useful and put to the best use when tailored to meet the needs of a classroom as decided by whomever is facilitating this application.

Differentiated teaching approaches assist in making this model accessible to all students in your classroom. The design of this application inherently uses a differentiated teaching approach as through this application students are encouraged to participate using their own learning styles. Differentiated teaching assures all students will be involved in the lesson by offering options that address not only diverse learning styles and ability but also address other student variables, such as motivation, personality, and attitudes.

Classroom centers are used in this application as centers have been found to promote self-directed learning as an area is set up for the students to explore and discover via their own style and at their own pace. Student input in the creation and on-going evolution of class centers make them a meaningful experience for the student. The centers assist in prompting the students to make connections of content from the center with their real-life experiences and perceptions.

Differentiated learning and classroom centers result in active learning, as in each the student is an integral part of the scenario referred to as student-based learning. In a student-based teaching and learning approach the content and delivery method is defined by how the student learns and the student's active involvement connecting new information to prior knowledge.

Teaching techniques, warm-up activities, suggestions for classroom design, and a sample of a play script generated by this application are found in Appendix C, titled *Personal Observations*.

The next section of this application includes learning objectives, and descriptions of the nine process steps. A process flow chart is found in Appendix D.

Objectives for third-grade class using scriptwriting as a teaching and learning application

- Engage students in the learning process using an active learning process
- Student exploration and use of the creative process
- Community approach to creative problem solving
- Assist students in looking at issues from different perspectives
- Provide a platform of acceptance for different learning styles and different perspectives
- Encourage students to enhance their natural creative process through practice

The nine steps of this application are demonstrated in a process flow chart on the next page. After the flow chart the nine steps of the process will be listed with descriptions of the steps. The intention of use for this application is as a flexible tool that can be tailored to fit the needs of your teaching and your student's learning. Through this approach the application while modeling an ecological approach is also meant to be used as an ecological tool as the user determines all of the variables involved when putting the application into action for his or her needs.

Nine-Step Application

This application provides an active, ecological approach to learning through script building using sociodrama. The steps are deliberate in promoting student engagement through an active learning experience, utilizing preference and style of the student, providing a platform for the student to use prior knowledge and build new connections and ideas, and using the power of group exploration to idea build, while learning how to see and make use of different perspectives within the group.

1. Describe Content

Choose a content area and frame a general question around it and give pertinent background information to be used in for brainstorming step on this application.

2. Warm-Up

Do an activity that will bring the class together as a community. It is good to choose an activity that includes physical, visual, audio, and written and spoken word to assure all student learning styles are addressed.

3. Brainstorming

Remind students of several points about the content area and frame a question, for example, “How might we work together as a community to stop pollution?”

4. Choose Three Ideas from Brainstorming

This is a teacher’s choice and should be based on the teacher’s knowledge of the class and on relevance to the content area the teacher would like the students to explore.

5. Create Student Center with Roles

Each center should have the original question from the brainstorming session and a sign with one of the three ideas as a theme to answer to the question in the center. For example, the larger heading on a poster would read, “How might we work together as a community to stop pollution?” The second heading would define the role based on one of the three ideas chosen. For example, one of the ideas might have been *Don’t throw garbage in the park*, and the theme could be *Park Information Center*.

6. Explore and Clarify Roles

Turn the ideas into statement starters, for example, “How might we tell people not to throw garbage on the parks?” To prompt the creative process and role playing have props relative to theme, like a trash can, park ranger hat, crumpled-up paper for litter, sunglasses, or picnic basket. Ask students to work as group to answer the question by playing different characters that might be in the park and involved in helping to answer the question. Model an example of this process.

7. Make-a-Play and Rehearse

Give students time in their centers to clarify their roles and develop their characters. Quietly observe centers that may need encouragement and guidance in staying on task. Bring the whole group back together, and ask students if they think they can develop their roles and theme into a short play. Have at least three rehearsals so that characters and roles may develop, different perspectives are shared, and assure that all student styles have an opportunity to be part of the process.

8. Present Play

Plays can be presented to the rest of the class, and then to parents, teachers, or other classes.

9. Reflect on Ideas and Solutions

Several days after the play have students share their ideas about the process of the play and what they liked or didn't like about it. Next, bring out the original question and have students share as to how as a group they answered the question and found solutions to the problem.

The intention of this application is to engage students in the learning process through an active process. This active process includes student exploration, discovery, and sharing of ideas and perspectives, allowing students to use the powerful element of connecting ideas as a group to solve a problem. Through this group work students have the opportunity to gain new insights about a real-life problem and access thinking and coping skills in order to work within a group, ideally turning any conflict that arises into potential for learning and solution finding.

Discussion, Future Explorations, and Summary

Bring on the Dragons and Mermaids!

One of my key learnings in the development of this application is the importance of flexibility when facilitating an active learning process. As students construct new information and make connections it is important to remember that it is their process based on their reality of the moment. If that reality includes dragons and mermaids coming into your classroom, put out the welcome mat! It means that you are doing your job to let the active learning process unfold. As students discover new information they will become practiced at making and building new connections. Moshman and Lukin in their article "The Creative Construction of Rationality A Paradox?" propose that rationality increases during the process of making and building new connections: "Cognitive novelties are actively constructed by the mind but may nevertheless lead to systematically increasing rationality in that each new stage is a systematic reflection on and reconstruction of the stage before." (Moshman & Lukin, 1989, p. 194)

Through experimenting with idea building and sharing in an active learning process there may be some new and novel ideas produced. These ideas may not always be of use at the moment, but students through this process are systematically working on increasing rational thought through this active process.

In creativity models, constructivist learning models, and as supported by brain function research, active processes that engage the student are the most productive in promoting scenarios in which learning will occur. The path to learning via an active learning process at first glance may be filled with mermaids and dragons that seemingly are barriers to knowledge and logical thought from our adult perspectives. Constructivist theory proposes that learning is constructed by an active mind building on information found through a reflective process:

... the question of how rationality can be creatively constructed. A full answer must explain a) how novel reasoning can be produced by the development of an individual b) how this new reasoning can be not merely different from earlier reasoning but in fact more rational, better able to direct the knower toward objective knowledge.

...through repeated reflective abstractions, knowledge implicit in each level of subjectivity can be explicitly differentiated and coordinated at a higher level. The resulting metasubjectivity is more rational due to the self-reflection inherent in its construction and can thus serve as a better basis for objectivity. (Moshman & Lukin, 1989, p. 197)

Ideas generated by students in an active learning student centered process may appear to be fantastical, and as adults we may have trouble reconciling the ideas generated to the content area we are teaching. However, through this engaging process the students are developing their thinking skills and building cognitive connections they will use in the future as they come across new information and experiences. Practice in the exploration and discovery process and working through this process with peers will assist in student learning and prepare students as they travel from one developmental stage to the next.

Jean Piaget viewed the process of development as a continuing renegotiation of "...the relation between subject (knower) and object (reality as constructed by the subject). The object of knowing always remains a function, however, of the knower (subjectively) as well as a function of reality (objectively)" (Moshman & Lukin, 1986, p. 196).

A new framework can continually be built upon from previous knowledge and experiences. Reflection on this existing framework provides an evaluative process, leading to progression of ideas and knowledge building. This is a subjective process that is on-going in the learning process. Through increased progression and evaluation the learner's previous subjectivity becomes an area of knowing through reconstruction in the evaluative process, thereby increasing objectivity (Moshman & Lukin, 1986).

The ignition of this natural process can be fostered and enhanced in teaching and learning by being aware of the process and by deliberately teaching and modeling to students this action-oriented creative process. This is an ecological process recognizing the relationship between the student's style and prior experiences and knowledge, the impact of environment on student learning, and the integration and processing of new information and experiences. This ecological process is described by Gruber (1989):

... a purposeful work integrating cognitive, emotional, aesthetic and motivational aspects of the creative process. This approach is developmental and systemic.Creative work evolves over long periods of time. It is purposeful work and there is a constant interplay among purpose, play, and chance. This approach is also pluralistic. The creative person enjoys and exploits not one but many insights, metaphors, social relationships, projects and heuristics...This approach is interactive..The creative person works within some historical, societal, and institutional framework. The work is always conducted in relation to the work of others. At the same time, the creator works alone, even when intimately bound up with others. This interaction produces varying patterns of conflict, influence and collaboration. (Gruber, 1989 p.4)

The use of script building as a teaching and learning application as presented in this paper employs an ecological approach in teaching and learning, with the steps of the application an evolving process approach as the students progress from one step to the next.

Future Explorations

Active learning engages students, and, according to research, opens up pathways in the brain for critical thinking skills. This provides excellent areas of research to assist in defining what type of learning will work best for whom. If the key is to provide active learning that engages students in preparation as global citizens in a fast-paced, changing world ripe with on-going technological advances then future explorations could include a measurement designed to demonstrate if educational teaching theories are in alignment with fast-paced technological advances.

Questions to provoke discussion and exploration about teaching and learning:

- How might it be important in the 21st century to facilitate and nurture students in the process of constructing and building on their knowledge base?
- How might cognitive functions have changed in the last few centuries?
- How might process be more important than product than in the past ?
- How might we assist students in honing design thinking skills?

Future inquiry into the descriptions and functions of constructivist theory and design thinking may offer an arena to further examine the ecology of various action-oriented processes in teaching and learning. This inquiry could perhaps extend to further define and develop teaching and learning models and practices that are most relevant and useful in current societies.

Summary

In order to map where we are going it is important to know where we have been. The words of Piaget (Moravec, 2009) while in the past can hold true today as we question our intention for education:

We can classify education into two main categories: passive education relying primarily on memory, and active education relying on intelligent understanding and discovery. Our real problem is what is the goal of education? Are we forming children who are only capable of learning what is already known? Or should we try to develop creative and innovative minds capable of discovery from the preschool age on through life? (p.1)

The foundational work of creativity scholars will continue to assist society moving forward in identifying and building on appropriate action processes as warranted by the context of a society at any time.

The application put forth in this paper is intended as a useful action-oriented approach to assist teaching and learning. Also, commonalities among the constructivist learning theory, the Thinking Skills Model, Torrance Sociodrama Model of Creative Problem Solving, and this teaching and learning application are shown for the purpose of demonstrating the use of this application as an action-oriented teaching and learning tool. Finally, this application is designed as a learning and teaching process using an ecological system reflecting the multidimensional facets of creativity that students explore through their natural creative process and an active learning process.

Reflecting on the ecological nature of the world, including linking past, present, and future as individuals and as societies, Joseph Moreno's statement in 1946 has especial relevance today: "Mankind's masses suffer from social and mental unrest. Catharsis will probably come again from instruments which combine universality of method with great practicality." (Moreno, 1946, p.3) Perhaps the study of creativity is the instrument our educational system should embrace as a universal and practical method of moving past this social and mental unrest.

References

- Blatner, A. (2007). *Interactive and improvisational drama varieties of applied theatre and performance*. Lincoln, NE: iUniverse.
- Bonwell, C.C., & Eison, J.A. (1991). *Active learning: creating excitement in the classroom*. Informally published manuscript, ERIC Clearinghouse on Higher Education, George Washington University, Washington, District of Columbia. Retrieved 11/28/10 from <http://www.oid.ucla.edu/units/tatp/old/lounge/pedagogy/activelearning-eric>
- Bruner, J. (1986). *Actual minds possible worlds*. Cambridge, MA: Harvard University
- Cooper, P. (1993). Paradigm shifts in designed instructing from behaviorism to cognitivism to constructivism. *Educational Technology*, 33, (4), 12-19.
- Davis, D. (2004). *Creativity is forever*. Kendall/Hunt: IA.
- Fosnot, C.T. (1996). *Constructivism: Theory, perspectives, and practice*. New York: Teachers College Press.
- Gagnon, G.W., & Collay, M. (2001). *Designing for learning: Six elements in constructivist classrooms*. Thousand Oaks, CA: Corwin Press
- Gergen, K. (1985). The social constructivist movement in modern psychology. *American Psychologist*, 40, (3).
- Gill, C. (1985). Ancient psychotherapy. *Journal of the History of Ideas*, 46(3), Retrieved 11/27/10 from <http://www.jstor.org/stable/2709470>
- Greenberg, L.S. (1998). *Handbook of experiential psychotherapy*. Guilford Press: MA.

- Gruber, T. (1989). *The acquisition of strategic knowledge*. Academic Press: MA.
- Illeris, K. (2007). *How we learn: Learning and non learning in school and beyond*. Routledge: NY
- Lowman, J. (1984). *Mastering the techniques of teaching*. San Francisco, CA: Jossey-Bass.
- Maslow, A. (1954). *Motivation and personality*. New York: Harper
- Moravec, J. (2009). Jean Piaget on Creativity and Innovators. *Education Futures Web Site* Retrieved on 12/01/10 from <http://www.educationsfutures.com/2009/11/06/>
- Moreno, J.L. (1946). Sociometry. *American Sociological Association*, 9(2), Retrieved 11/08/10 from <http://www.jstor.org/stable/2785011>
- Moshman, D., & Lukin, L.E. (1989). The creative construction of reality. In J.A. Glover, R.R. Ronning, & C.R. Reynolds (Eds), *Handbook of Creativity*. New York: Plenum Press.
- Norcross, J.C. (Ed.). (2002). *Psychotherapy relationships that work: Therapist contributions and responsiveness to patients*. Oxford University Press: New York
- Perkins, D. (2009). *Making learning whole: How seven principles of teaching can transform education*. CA: Jossey-Bass.
- Piaget, Jean. (1977). *Equilibrium of cognitive structures*. New York: Viking Press.
- Puccio, G., Murdock, M. & Mance, M. (2007). *Creative leadership: Skills that drive change*. Thousand Oaks, CA: Sage Publications
- Rhodes, M. (1961). *An analysis of creativity*. Phi Delta Kappa, 42, 305-310.

Skora, C.M. (2010). *Sociodrama as creative problem solving*. Unpublished research paper, Buffalo State College, Buffalo, NY

Thorne, B. (2003). *Carl Rogers: Key figures in counseling and psychotherapy*. CA: Sage.

Torrance, E.P., Murdock, M.C., & Fletcher, D. (1989). *Sociodrama as creative problem solving*: Unpublished Manuscript.

Torrance, E.P., Saft, H.T. (1999). Making the creative leap beyond. Buffalo, NY: Creative Education Foundation Press.

Willis, J. (2007). Curriculum and instruction: preserve the child. *Inspiring Teachers Web Site* retrieved 11/13/10 from [http: /
/www.inspiringteachers.com/classroom-resources/articles](http://www.inspiringteachers.com/classroom-resources/articles)

Personal Observations, Activities and Script Sample

A Play is Born – Observations & Activities

In trying to get the students comfortable with moving together through cultural dance I decided to explore the village theme as our school places great emphasis on community, and a school is a village, with a variety of individuals working together as a community. This exploration began with inquiry-based or problem-based learning, which I later framed as *creative problem solving* as I began my studies in Creative Studies at Buffalo State College. In our circle meeting after a name game warm up I asked all the students to share ideas about what they thought comprised a village. Students were then given an option of drawing a picture about a village or talking to a partner about what they thought a village would look like.

I wrote all their ideas on a poster and the next class after a warm up asked the students to look at all the ideas that came from their discussions and drawings. To begin to put a frame on our village I began teaching the students an Afro-Brazilian dance, and as visual aids posted maps, facts about the rain forest in Brazil, and photos of various small towns and cities in Brazil from ancient to present day. Students were asked if they could find any connections with their ideas of a village and the pictures of Brazilian villages posted in the room. I wrote their connections on a poster. The most common responses: we eat together, have families, have pets, go to the doctor, and go to school.

The next class, after warm up, I posted one each of the following connections in different sections of the room: family, school, doctor, food. Students were randomly chosen (by pulling names from cup) to go to one of four centers and take 5 minutes to discuss ideas about what their center might look like as part of a village. As this was a new activity there needed to be

discussion surrounding what the students were expected to do. Interestingly, many of the students were very concerned about what their tasks were supposed to produce. Students were assured that all of their ideas would be useful in helping to define what their roles might be in a village.

After about 5 minutes, each center shared with the other centers its ideas about the role of family, school, doctor, and food in a village. The ideas were from very practical, such as growing food to share, to the wonderfully fantastical, including dragons that save mermaids when a volcano explodes and turns the water to rock. When students were finished with their sharing I asked them if they thought we could make a play about their village, which was answered with a resounding and noisy “Yes!”

Prior to the next class, in order to put some shape around the students’ ideas, I assigned each student to a center with some props: food center -- dried corn and flowers, wooden bowls, fabric; doctor center -- hats, fabric, baskets; school center -- paper, books, tape, markers; family center - fabric, toys, plastic hammer. Each group was asked to make a pretend scene about its village based on its center group using the props however they liked. Students were told that in five minutes they could share their scene and the characters in their scene with the rest of the class.

As they were working in groups I assisted if it looked like they were getting way off task or not sure how to approach the task. If they were not sure how to approach the task I became a member of their group and began asking questions about who they thought they would be and what would they do as this character. With just a few idea starters the students would start to become engaged, defining their role by actions the role would include. These included gardening, taking care of other children, and making food.

The students shared their scenes with the other groups, and I told them that in the next class we would start making a play by putting all the centers together. I always framed instructions in questions, asking students if they thought we could put all of our centers together to make a play by the next class.

In the next class all centers and props were laid out with the addition of a community space in the middle that was outlined with fabric for a stage. After warm up and practice of Afro-Brazilian dance, students were given a few minutes to get their props and costumes and meet with their groups outside of the stage area. Students were asked to think about the question, “How can you, in your role, help the village to be a community where everyone works together for the good of the community?” They then were asked to discuss this question in their center groups while they were in their roles that they had chosen within the centers (e.g., brother, sister, doctor, teacher, etc.). I assisted groups that needed help by identifying the task through modeling by doubling in the role they chose. In the family center, for instance, if someone was having difficulty in the role of mother I would also take on the role of mother and say to the students taking on the roles of children in the family, “I am so happy and proud to be your mother. I appreciate how you all help with the garden. Could you please help me pick the best spot to plant our tomatoes?” or “Do you think we should take any of our vegetables to share at school?” “ Students had about ten minutes for idea sharing with their groups.

I asked for all groups to sit in front of the stage area, then asked each group to act out its ideas through their roles, demonstrating how they could help everyone in the village work together for the good of the community. What I learned from this activity is that it worked better if I assisted

in defining roles within each group. However, I also learned in this process to be open to possibilities that students brought forth outside the definitions of the center roles.

Bring on the Dragons & Mermaids!

My key learning from the idea-generating learning center was that as important as structure is flexibility is just as important. Sometimes, the richest ideas occurred by letting the learning process take over by not being afraid to let dragons and mermaids enter the scene and classroom. Having a structure was great, but the ideas generated outside of the defined roles were grand. Flexibility around structure opened the gate for the dragons and mermaids as a rich expression of an active learning as minds were at work constructing new ideas and making new connections. The student's story of dragons, mermaids, and volcanoes had all the makings of not only great lessons for a village but also of great story making, great creativity, and great creative problem solving.

Sample of Play Generated by Scriptwriting as a Teaching and Learning Application

So the Story Goes...

The lava from the volcano pushed all of the water out of the lake, and the poor mermaids had nowhere to swim and no water to drink. Plus, their beautiful mermaid tails were getting very dry and starting to look ugly. They were so sad that they couldn't stop crying. The dragons were walking to the top of the volcano to get more fire when they saw and heard the mermaids crying. The dragons commented to each other that they never saw a mermaid cry before and that usually mermaids were happy, so they decided to stop and ask the mermaids what was wrong. When the mermaids told them about their problem of the lake being dry, resulting in no swimming, no drinking water, and their tails turning ugly, the mermaids began crying louder and louder. One

of the dragons stepped forward and said, “We are magical dragons, so we think we can help.”

The mermaids said, “Really?” and the other two dragons also said, “Really?” The lead dragon said, “If we can breathe fire out of our mouths we should be able to breathe water out, too. Give us a few minutes to figure this out and we’ll be back to help.” The mermaids started to hug each other while they commented about how nice and friendly the dragons were. They had complete faith that the dragons in their village would come back to help them.

Meanwhile, the lead dragon was deep in thought, while the other two dragons were saying they didn’t know how they could ever breathe water out of their mouths. They only knew how to breathe fire. Suddenly, the lead dragon looked very excited and shouted, “Where are we?” The other two dragons said, “What do you mean where are we? We are on our way to the top of the volcano!” The lead dragon said, “Yes, but look around us -- what do you see?” The other two dragons started naming things they saw: trees, jungle, forest. “That’s it!” the lead dragon said; “Rain -- don’t you get it? Water! We can open our mouths and catch the rain and then go breathe water into the lake so that the mermaids can swim again.” The other two dragons said, “Hey, that’s a good idea. I guess it will work. Let’s try it!” The dragons opened their mouths and filled them with rain. They hurried back to the lake and breathed water into the lake. The mermaids were so happy they jumped into the water and started splashing around while shouting, “Thank you dragons! We’re saved! We’re saved!” The dragons said, “You’re welcome” and continued on their way to the top of the volcano, but first promised the mermaids they would check to make sure the lake was filled every day.

Another Day in the Village

This role playing unit turned into a skit that was presented to other students and family members, and also began a yearly school-wide program. It was through the children's imaginations and the creative process that an idea came forth and was built upon and developed within a group. It was a great day in the village!

The students expanded their ideas of roles within a village while modeling and answering the original question, *How might you, in your role, help the village to be a community where everyone works together for the good of the community?* plus adding a dramatic flavor that all good stories contain. In taking on the roles of dragons and mermaids the students were able to connect more deeply with answering the question, present it in a way to which other students could relate, and demonstrated the power of connecting ideas together to create tension resulting in idea generation and solution finding.